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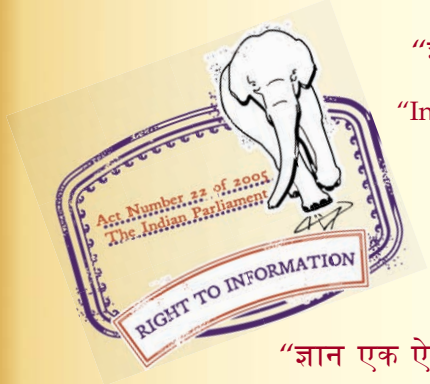
IS 4026 (2007): Aluminium ingots billets and wire bars (EC grade) [MTD 7: Light Metals and their Alloys]



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Satyanarayan Gangaram Pitroda
"Invent a New India Using Knowledge"

"ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

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भारतीय मानक

एल्यूमिनियम के इंगट, बिलेट एवं तार की छड़ें (ई सी ग्रेड)

(चौथा पुनरीक्षण)

Indian Standard

ALUMINIUM INGOTS, BILLETS AND WIRE BARS (EC GRADE)

(Fourth Revision)

ICS 77.150.10

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

November 2007

Price Group 1

FOREWORD

This Indian Standard (Fourth Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by Light Metals and Their Alloys Sectional Committee had been approved by the Metallurgical Engineering Division Council.

This standard was first published in 1967 and revised in 1969, 1978 and 1987. While reviewing this standard, in the light of experience gained during these years, the Committee decided to revise it to bring in line with the present practices being followed by the Indian industry.

In this revision the following changes have been made,

a) A new clause on references has been incorporated,

b) Requirement of Grade 4, Al 98.9 has been deleted,

c) Silicon content of Grade 1 and Grade 2 has been lowered, and

d) Marking clause has been modified.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

ALUMINIUM INGOTS, BILLETS AND WIRE BARS (EC GRADE)

(Fourth Revision)

1 SCOPE

This standard covers the requirements of three EC grades of aluminium ingots, billets and wire bars.

2 REFERENCES

The following standards contain provisions, which through reference in this text constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on these standards are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	*Title*
504 : 1963	Methods of chemical analysis of aluminium and its alloys (*revised*)
1820 : 1979	Recommended shapes and sizes for aluminium notched bars and ingots for remelting purposes (*first revlsion*)
5047 (Part 1) : 1986	Glossary of terms relating to aluminium and aluminium alloys: Part 1 Unwrought and wrought metals (*second revision*)
10259 : 1982	General conditions for delivery and inspection of aluminium and aluminium alloy products

3 TERMINOLOGY

For the purpose of this standard, the following definition and the definitions given in IS 5047 (Part 1) shall apply.

3.1 Cast

a) Product of one furnace melt, or

b) Product of a number of furnace melts mixed prior to casting.

4 GRADES

4.1 The following three grades are covered in this standard:

a) *Grade 1* — Ingots/billets/wire bars (Al 99.7 percent) used for making rods by processes other than continuous casting and rolling.

b) *Grade 2* — Ingots/billets/wire bars (Al 99.6 percent) used for making rods produced by continuous casting and rolling.

c) *Grade 3* — Ingots/billets/wire bars (Al 99.5 percent) used for making rods by processes other than continuous casting and rolling.

5 SUPPLY OF MATERIAL

General requirements relating to the supply of material shall conform to IS 10259. The material shall be reasonably free from slag or dross.

6 MANUFACTURER

6.1 The ingots /billets/wire bars shall be manufactured from primary aluminium.

6.2 Scrap may also be used at the discretion of the manufacturer.

7 SHAPES AND SIZES

Unless otherwise agreed, the shapes and sizes of ingots shall be in accordance with IS 1820.

8 CHEMICAL COMPOSITION

The chemical composition shall be determined either by the method specified in IS 504 or any other established instrumental/chemical method. In case of dispute the procedure specified in IS 504 shall be the reference method. The material shall have the chemical composition as given in Table 1.

9 SELECTION OF SAMPLES FOR ANALYSIS

9.1 At least one sample shall be selected at random from every 4 000 kg, or part thereof, of each cast.

9.2 Samples shall be obtained from one of the following methods.

a) Wherever possible, directly from the stream of metal filling the moulds midway through the pours, or

b) By milling or any other suitable method, and taken throughout the thickness of the ingot/ billet/wire bar after the skin has been removed.

10 RETEST

If a sample selected for testing fails to meet the requirements of the specification, two further samples

shall be taken from the same lot of metal. If either of these samples fails to meet the requirements of the specification the whole of the metal represented by the sample shall be rejected.

11 MARKING

11.1 All the material shall be identified by such marking as shall ensure full identification of the material. The supplier shall furnish along with each consignment a certificate giving chemical composition of all the casts to which the material belong in that consignment.

11.2 BIS Certification Marking

The material may also be marked with the Standard Mark.

11.2.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and Rules and Regulations made there under. The details of conditions under which the licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

Table 1 Chemical Composition of EC Grade Aluminium Ingots, Billets and Wire Bars

(*Clause* 8)

Sl No.	Elements	Grade 1 (Al 99.7 Percent)	Grade 2 (Al 99.6 Percent)	Grade 3 (Al 99.5 Percent)
(1)	(2)	(3)	(4)	(5)
i)	Aluminium, *Min*	99.7	99.6	99.5
ii)	Silicon	0.10	0.12	0.15
iii)	Iron	0.20	0.30	0.35
iv)	Copper	0.04	0.04	0.04
v)	Titanium + Vanadium	0.02	0.02	0.02
vi)	Manganese, Zirconium and Chromium	0.01 each	0.01 each	0.02 each

NOTE — Composition limits are in percentage maximum unless shown otherwise.

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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards: Monthly Additions'.

This Indian Standard has been developed from Doc: No. MTD 7 (4442).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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